AD_____

Award Number: W81XWH-06-02-0072

TITLE: Advanced Processing for Biomedical Informatics (APBI)

PRINCIPAL INVESTIGATOR: Craig D. Shriver, M.D., FACS, COL MC USA

CONTRACTING ORGANIZATION: Henry M Jackson Foundation for the Advancement of Military Medicine
Rockville, MD 20852

REPORT DATE: October 2007

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
01-10-2007	Final	27 Sep 2006 – 26 Sep 2007

4. TITLE AND SUBTITLE

Advanced Processing for Biomedical Informatics (APBI)

5a. CONTRACT NUMBER

5b. GRANT NUMBER
W81XWH-06-2-0072

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Craig D. Shriver, M.D., FACS, COL MC USA

craig.shriver@na.amedd.army.mil;; monica.rosenquist@amedd.army.mil

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Henry M Jackson Foundation for the Advancement
of Military Medicine
Rockville, MD 20852

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

A research consortium including Windber Research Institute (WRI), the US Army Space and Missile Defense Command (USASMDC), the Joyce Murtha Breast Care Center (JMBCC), and the Clinical Breast Care Project (CBCP) Walter Reed Army Medical Center (WRAMC) has been formed to evaluate the use of minimally-invasive methods for screening including mammography, ultrasound, proteomics and genomics, in the serum and breast for early detection of markers for risk of disease or early presence of disease and to facilitate early intervention in medical treatment or lifestyle. The approach focuses on the continuing development/aging that the female breast undergoes through life and its potential sensitivity to environmental and lifestyle factors, particularly as they interact with specific genetic factors.

15. SUBJECT TERMS
Proteomics, Biomedical Informatics, Genomics, Patient Focused, Radiology Information System (RIS), Decision Support System, Cancer Detection, Anomaly Detection Algorithm

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			USAMRMC
U	U	U	UU	6	19b. TELEPHONE NUMBER *(include area code)*

Table of Contents

Advanced Processing for Biomedical Informatics (APBI)
Annual Report

1. INTRODUCTION:

2. BODY:

- Grant of $443,620.00 was awarded September 26, 2006.
- The subprotocol was submitted to the WRAMC Department of Clinical Investigation (DCI) on October 1, 2006.
- The subprotocol was presented and defended at the Clinical Investigation Committee January 3, 2007.
- Initial DCI approval was given on January 16, 2007 pending revisions.
- Sub award Agreement to Windber Research Institute (WRI) on April 17, 2007.
- Full DCI approval was received on July 7, 2007 and the subprotocol was forwarded to MRMC.
- WRI received approval from their IRB and the subprotocol was submitted to MRMC in July 2007.

Task 1: Establish research and administrative support.

Develop and implement the required administrative, personnel and programmatic support to maintain research support and project management through the end of the funding period.

Administrative and programmatic personnel have been identified and are currently awaiting secondary approval of the protocol in order to begin the research effort.

Task 2: Establish a collaborative research consortium between the Clinical Breast Care Project, Walter Reed Army Medical Center, the Windber Research Institute, the US Army Space and Missile Defense Command and the Joyce Murtha Breast Care Center.

A sub award agreement established with Windber Research Institute on April 17, 2007.

Task 3: Provide the following specific performance tasks to demonstrate the feasibility of performing disease risk assessments for early detection and prediction of risk of disease of women

a. Evaluate the potential for enhanced mammogram image processing algorithms, adapted from the Missile Defense community to improve early breast cancer detection.
b. Evaluate the potential for enhanced ultrasound image processing algorithms, adapted from the Missile Defense community to improve early breast cancer detection
c. Evaluate the integration of mammography and ultrasound to produce a fused, multi-phenomenological result.
d. Evaluate the application of Response Surface Methodology models to perform the data fusion.
e. Evaluate the contribution of integrating genomics and proteomics data together with the image processing the other data to increase the confidence of disease risk assessment.
f. Evaluate the impact of environmental and lifestyle factors on the assessment when combined with the imagery and proteomic and genomics results.

No research efforts have taken place at this time due to the outstanding protocol approval.

Task 4: Establish conceptual development of Decision Support System for the early detection of prediction of risk of disease in women.

Based on hierarchy of clinical significance from outcomes in Task 3, create the architecture and demonstrate the feasibility of performing disease risk assessments of women by integrating multidisciplinary analysis and data in the patient based diagnostic Decision Support System.

Development of the Decision Support System will take place after Task 3 has been completed.

3. KEY RESEARCH ACCOMPLISHMENTS:

No key research accomplishments to report at this time.

4. REPORTABLE OUTCOMES:

There are no reportable outcomes at this time.

5. CONCLUSIONS:

Not applicable at this time

6. REFERENCES:

Not applicable at this time.

7. APPENDICIES:

There are no appendices at this time.